prepared PEN standard. Urine samples of OA patients and healthy controls were evaluated. Results can probably yield useful additional information about activity of the disease.

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SAT0195 SONOGRAPHIC AND CLINICAL EVALUATION OF THE INVOLVEMENT OF ACROMIOCLAVICULAR JOINT IN PATIENTS WITH SHOULDER PAIN

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Background The involvement of acromioclavicular joint (ACL) can be one of the causes of shoulder pain. Sonography studies carefully ACL and easily detects alterations of that joint.¹ In particular ultrasonographic analysis makes it possible to reveal the presence of effusion and to show irregularities of the joint margins. By performing an adduction stress test clinical examination can reveal the presence of pain at the ACL.²

Objectives The aim of the present study was to examine sonographically the involvement of ACL in patients with painful shoulder and to compare the results with those obtained by clinical examination of ACL (adduction stress test).

Methods 425 patients with shoulder pain were studied. They were 282 female and 143 male; their mean age was 57.9 years (range 18–90). In 103 cases bilateral involvement was present; for this reason 528 shoulders were studied totally. Moreover both the shoulders of 198 healthy control subjects were examined. They were 109 female and 89 male and their mean age was 56.3 years (range 19–69).

Sonography of ACL was performed using a 7.5 MHz linear transducer. In all cases ACL was examined by longitudinal scanning of the joint, with the shoulder in neutral position. Effusion was revealed when the capsule stood convex to the articular space with simultaneous appearance of hypoechoic area within the joint.¹ Irregularities of the joint margins were considered present when the bone surface of the clavicle and of acromion appeared discontinuous.

An adduction stress test was performed holding the arm with the elbow and shoulder extended and then passively adducting across behind the back.² Differences were analysed by Chi Square test.

Results Sonography of ACL showed involvement of that joint in 270 cases (51.1%; $p < 0.0000$). In particular effusion was present in 142 joints (26.9%) and it was slight in 94 cases (66.2%), moderate in 46 (32.4%) and marked in 2 (1.4%). Irregularities of the bone surface were found in 161 cases (30.5%; $p < 0.0000$). In 109 joints only effusion was present, in 128 only irregularities were found, in 33 both of the alterations were revealed.

In healthy control subjects effusion was present in only 2 cases (0.5%), irregularities were found in 9 shoulders (1.7%).

The adduction stress test was positive in 43 joints (8.1%; $p < 0.0001$). In particular it was positive in 34 cases with sonographic finding of effusion, in 8 ACL with sonographic evidence

of both effusion and irregularities and in 1 joint with sonographic demonstration of irregularities. Moreover, considering only the cases with joint effusion the test was positive in all the 2 cases with marked effusion, in 33 out of the 46 with moderate effusion and in only 1 out of the 94 with slight effusion.

Conclusion Sonographic study appeared to be more sensitive than clinical examination. Moreover ultrasonographic technique made it possible to identify the type of alteration showing whether it was due to the presence of inflammation (effusion) or to degenerative process (irregularities) within the joint.

Sonographic demonstration of alterations of ACL in a great percentage of cases of shoulder pain evidences the importance of this joint in the shoulder girdle pathology.

SAT0196 STEREOLOGIC MEASUREMENT OF INFLAMMATORY SYNOVIAL MEMBRANE VOLUME ON MR IMAGES

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Background Manual outlining of the synovial membrane on MR images in inflammatory joint diseases is too time consuming for clinical use.

Objectives The purpose was to introduce a less time-consuming stereologic method for measuring synovial volume by MRI in inflammatory joint diseases.

Methods Post-contrast 3-D T1-weighted turbo gradient MR images of the finger (metacarpophalangeal and interphalangeal) joints (14 joints) were acquired from 11 patients with rheumatoid arthritis ($n = 8$) and reactive arthritis ($n = 3$). Manually outlined volume was taken as a gold standard and compared with stereologic volume estimation on transverse 1 mm thick slices.

Results The total volume of 154 finger joints was estimated. A significant correlation between manual and stereologic estimations of synovial volumes was found (Spearman rho = 0.71, $P = 0.002$). 95% limits of agreement were ± 5 –6 ml (14 finger joints per patient). The time used for volume determination in a patient varied from 1–2.5 h by manual outlining and from 0.5–1 h by stereologic determination.

Conclusion Stereologic volume estimation can provide measures of synovial volumes comparable to the manual outlining method and is less time-consuming. Stereologic volume estimation seems to be a clinically useful method, especially if it is integrated in the MR unit's workstation.

SAT0197 INTESTINAL BEHCET'S DISEASE AND CROHN'S DISEASE: A RADIOLOGICAL COMPERATIVE STUDY

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Background

Objectives The aim of this study was to compare the enteroclysis findings in Behcet's disease (BD) and Crohn's disease (CD).

Methods From 1997 to 2000, seventeen patients with clinical suspicion of intestinal BD were examined by enteroclysis and radiological findings were compared to those seen in 50 Crohn's cases.

Results Twelve of 17 patients with BD showed findings of intestinal involvement in enterocolitis (70.58%). Disease duration and duration of intestinal involvement were 3–19 years (median 8.09 years) and 1 month–8 years (median 3.02 years) respectively. The findings were aphthous ulceration (n = 10), linear ulceration (n = 4), deep ulceration (n = 1), coarse granular pattern (n = 1), thickened folds (n = 5), wall thickening (n = 2), pseudopolypoid appearance of the ileocecal valve (n = 6), long segment involvement (n = 1), perforation and recurrence at the site of anastomosis after right hemicolectomy (n = 1). In 50 Crohn's cases, disease duration were 3 months–22 years (median 4.14 years). Ten cases were in the early, 11 in the intermediate and 29 in the advanced radiological stage with or without complication.

Conclusion

- Enterocolitis is the method of choice with a high accuracy rate (70.58%) for symptomatic patients to detect the intestinal pathology in BD.
- The enterocolitis findings in BD even when longstanding were usually mild when compared to those seen in CD. The main finding in BD was superficial ulceration. Deep ulceration common in CD was seen in only one patient with BD.

SAT0198 HOW NORMAL ARE THE HANDS OF NORMAL CONTROLS? A STUDY WITH DEDICATED MAGNETIC RESONANCE IMAGING

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Background Imaging of the joints is an invaluable technique for rheumatoid arthritis (RA). Magnetic resonance imaging (MRI) is increasingly used to visualise joint lesions in RA.¹ MRI is a very sensitive technique, which is able to show subtle changes of the joints. However, little is known about MRI findings in normal subjects.

Objectives Our study evaluated bone lesions, articular space and thickness of the synovial membrane in normal controls.

Methods 50 hands of 25 controls (19 women) with age range 31–88 years were studied. Four subjects had slight osteoarthritis of the first carpometacarpal joint: this joint was excluded from further evaluation. MRI of the hand was performed using a 0.2T dedicated device (Artoscan, Esaote, Genova, Italy). GE T1 and STIR sequences were used on the coronal and axial planes. Evaluated lesions included a) bone oedema; b) erosions; c) tenosynovitis, and d) thickness of the synovial membrane and effusion in 6 different areas of the wrist, as well as in the MCP and PIP joints.

Results Bone oedema was seen in one subject only. Bone erosions were seen in 9/25 controls (36%). They were more frequent in subjects older than 65 years (50% vs. 23%; ns). The localization of erosions in the normal hand was not different from that observed in RA. Tenosynovitis of the extensor and flexor tendons was seen in 2/25 (8%) and 4/25 (16%) of controls, respectively. It was more frequent in subjects older than 65 years (41.7% vs. 7.7%; p = 0.07). Erosions and tenosynovitis were not associated with manual labour. Joint space range was calculated in 14 different locations of the hand. No differences were found according to gender. In contrast, subjects aged more than 65 years showed an increased thickness of the synovial membrane at the radio-ulnar joint (p = 0.01) and in the

intercarpal row (p = 0.002), and an increased joint space in the third (p = 0.03) and fifth (p = 0.04) MCP joints.

Conclusion Bone erosions and tenosynovitis are frequent findings in normal subjects. In contrast, bone oedema was seen in only one control and seems therefore to be a specific finding of arthritic joints. Age, but not sex or manual activity, was associated with these changes. Articular space in the MCP and PIP joints, and synovial membrane thickness in 6 different locations of the wrist were increased in elderly subject. Our results indicate that caution should be used in defining MRI changes as specific for arthritis and in interpreting the data of published studies. Sufficiently large control groups should be included in studies of the arthritic joints.

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SAT0199 AORTIC AORTIC ROOT FUNCTION IN PATIENTS WITH RHEUMATOID ARTHRITIS: EVALUATION BY S WITH RHEUMATOID ARTHRITIS: EVALUATION BY

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Background Aortic Root Function in Patients with Rheumatoid Arthritis: Evaluation by M-Mode Echocardiography.

Objectives To evaluate aortic root function in patients with rheumatoid arthritis.

Methods 29 patients with rheumatoid arthritis (RA) (mean age 51 years) and 29 healthy subjects (mean age 49 years) participated in the study. In addition to the standard echocardiographic examination, aortic root function was evaluated in these groups by transthoracic M-mode echocardiography. RA was diagnosed according to the ARA criteria of 1987. Blood pressure with end-systolic (AoS) and end-diastolic (AoD) M-mode measurements of ascending aorta were used to calculate the indices of aortic root function: beta index (Peterson's elastic modulus), cross-sectional aortic compliance, aortic stiffness index and aortic root distensibility. The mean values of the two groups were compared by covariance analysis, taking age as the covariant. A p value <0.05 was assumed to be significant.

Results AoS and AoD were significantly higher in patients with RA than the control group (p < 0.05). Aortic stiffness and beta indexes were significantly higher in RA group when compared with the controls.

Conclusion When compared with the controls AoS, AoD, beta index and aortic stiffness index are significantly higher in patients with RA. This may affect cardiac function in patients with RA at long term.

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